DEPARTMENT RICULTURAL

J. P. STELLE, EDITOR.

PUBLISHER'S NOTICE—All communications intended for this department should be addresse to PROF. J. P. STELLE, Fort Worth, Tex.

THE NAVY BEAN QUESTION. Some months ago we published in these columns an article attempting to give good reasons for why the navy bean, sometime called the "Yankee soup bean," might be made a successful and profitable, crop for Texas. The article attracted a good deal of attention, and brought to us numerous letters (some of which we published) indorsing our views and showing that the bean was already raised in Texas to a considerable extent, for home use, and that it was invariably a success. The interest worked up by as spread beyond the borders of our own state, and now comes the Kentucky Farmers' Home Journal saying, in substance, that the United States imported last year about \$1,000,000 worth of white pavy beans, which might as well have been produced in this country. Of course one feels almost ashamed to mention, in Texas, any supposed-to-be great thing involving so small a matter as only \$1,000,000. Texas don't build much on a single million. You who read this page of THE GAZETTE Well know that last week we showed you by an argument irrefutable that Fort Worth alone was losing at least \$1,000,000 a year by not having her surroundings settled up and properly worked. But outside of Texas \$1,000,000 is a big thing, so we may talk on about the navy bean, after our contemporary, suggesting, however, that should Texas once become fairly concerned in navy bean culture, she'd talk millions in dollars and cents instead of \$1,000,000.

The crop, says the Home Journal, is easy of growth, and far more profitable than either corn, wheat or cotton. One would think that this boasted country of ours, with its vast territory and varied climate, might produce beans enough for home consumption, and even grow a few to spare. An increased attention to this subject is all that is necessary to effect the desired increase in the home growth. Like all other branches of agriculture, to be made profitable it must be learned and properly managed. In the selection of land for the white

navy bean, continues the Home Journal, you should look out for thorough drainage. The land need not be extremely rich-medium fertility will answer every purpose. If not up to medium fertility it should be so brought up by the application of manures. Wood ashes usually give good results, especially if supplemented with a little bone meal or super-phosphate. A good potato or veretable manure can always be depended upon as a fertilizer for navy beans. Prepare the ground by plowing and thorough harrowing and rolling. Plant seed with a crill, or by hand. In the latter case furrows must be marked out, say three feet apart and an inch or two deep. After planting, seeding may be covered, and the soil firmed by means of the feet. Leave plants six to eight inches apart, and cultivate freely. Do not hill. Small beans will require about half a bushel of seed to the acre; medium three pecks, and the large sorts one bushel. The time of planting varies according to the variety to be planted. The early varieties may be planted as late as July, while the later ones should be planted as early as June. Of course this is presuming that the region is one of a fair amount of rainfall throughout the season. In a region where the the rainfall is good early in the season, but is liable to be followed by severe summer frouth, it would be best to get the crop in the spring rains.

A marked article in the Cisco Round-Up gave Capt. Willard Robison of Eastland rounty has four acres in blackberries which net their owner \$100 to the acre as a berry grop, while between the rows are raised a beavy crop of the finest Irish potatoes. The potatoes and the berries together give Mr. Robison a clear profit of \$500 an acre. If this was something outside of Texas we'd take it "with a pinch of snuff," as they say, but no one has a right to be surprised at anything one hears with reference to Texas' productiveness. But this idea of growing Irish potatoes between one's blackberry rows is something new to us-we would have supposed the blackberries were covering the ground too completely for Irish potatoes to have much of a showing between the rows.

POTATOES AND BLACKBERRIES.

THE WILD GOOSE PLUM.

Last week we mentioned having seen a considerable representation of the Marianna plum on the Fort Worth market. This week the wild goose plum has put in a prominent appearance. The plums are of excellent quality and the market is well supplied with them, though on account of their attractiveness and excellence they are not running off as "cheap as dirt," the wholesale selling price being two dollars a bushel. After a careful examination of hundreds of specimens we have not seen a carculio in a single plum. The growers report the crop as fair, so, you see, we have another plum that is a success in Northern Texas, and it does seem to us that with his wild goose plums at two dollars a bushel. and with other products in about the same proportion, an industrious horticulturist ought to be able to make a living here. at least.

ARSENICAL POISONS.

Already we have published through these columns a good deal with reference to arsenical poisons employed as insecticides, but still people write us for further information on the subject. We now have on file nine letters asking us to give particulars, etc., through "Our Correspondence" column this week. As the subscribers are constantly nouring in we take it for granted that these writers are new readers of THE GAZETTE, and hence have not seen our former articles. For the information of all such we make up the following from a bulletin of the Iowa agricultural experiment station, issued on the authority of that eminent entomologist, Professor C. P. Gillette; 1. The cidest leaves of a tree or plant are

most susceptible to injury from arsenical applications. They often turn yellow and arop without showing the usual burnt or spotted appearance. One would naturally suppose that the youngest and most tender eaves would be the leaves most easily samaged, but experience has shown that

2. Heavy dews increase the injury done

to plants by arsenical poisons. This probably comes of the fact that dews tend to dissolve the poisons and carry them to the pores of the leaves, whereas, in a dry state the poisons would remain inactive on the

3. Leaves remaining perfectly dry after the poison has been applied can scarcely be injured even though the poisons have been spread upon them in large quantities. On this account it is probably best to apply poisons in the first part of the day so that there will be a speedy drying of the plants after the application.

4. Applications made in the heat of the day and in the bright sunlight do not injure foliage more than when applied in the cool of the day.

5. A shower of rain following the application of arsenical poisons to plants washes a portion of the poisons from the foliage, but does not increase the injury, as in the case of a heavy dew. This refers alike to poisons applied in either the dry or liquid form.

6. Leaves suffering from a fungous disease are more susceptible to injury than are healthy leaves.

7. Repeated and thorough tests have shown that London purple is, of all poisons, the most injurious to foliage, and white arsenic, prepared on Professor Stelle's plan, the least injurious. Paris green may be' regarded as ranking between the two poisons named

8. It has been ascertained by the Iowa experiment station that white aresenic in solution, on Professor Stelle's plan, may be improved as to its foliage-injuring qualities by adding a little lime. This converts it into something like the Bordeaux mixture.

9. White arsenic solution, as recommended by Profesoer Stelle for the cotton worm, may be kept as a saturated solution through an indefinite period of time, but as a diluted solution made ready for application to the plants it should be applied at once, as holding it over in this condition renders it more injurious to foliage.

10. Lime added to London purple or Paris green in water greatly lessens the injury that these poisons would otherwise do to foliage,

11. The arsenites cannot by any ordinary method be successfully mixed in a kerosene

emulsion. 12. The arsenites in strong soapy mixtures do considerable more harm to foliage

than when applied in water only.

ARSENIC FOR COTTON WORMS. Let us again assure the readers that there is no more danger attending the employment of white arsenic as an insecticide for destroying the cotton worm than there is in employing London purple or Paris green. If you should go to San Marcos, Hayes county, Tex., where we were stationed some months by the United States government, as an entomologist, in 1880, they would tell you a funny story about a planter with arsenic in his boots. He was a man of solid sense, and when he had made a careful study of the newly-proposed arsenic remedy he concluded to apply it at once, as the worms were fairly getting away with his cotton. So he made his solution of arsenic on the plan given by us in these columns some weeks ago, and got all ready for a move on the enemy. But an unforescen obstacle suddenly loomed up. His plantation hands were all negroes, and as they knew the remedy to be applied was as early as possible to give it the benefit of | have anything to do with it. After treat ing them to a round of words more emphatic than elegant, he hauled off his boots, placed half a pint of the poisonous solution into each, and then drew them on again. This to some extent restored confidence among the employes and the work of poisoning the worms went on. The planter wore his boots with the poison in them throughout the entire day, and no injurious effects whatever resulted.

SEEDLINGS MUSTSAVE US.

From time to time we have assured the people of Texas that fruits to become an entire success in our state must be Texan in character, and that fruits of this character must come to us through seedlings. We must plant seeds and select the best results until we have found exactly what we want. It'may take a good while for us to entirely fill the bill, and it may not-the very first effort might do it. Professor Thomas Newhan, the very leader among American horticulturists, contributes to the Gardeners' Chronicle a history of the Kieffer pear, which clearly illustrates what may be done by propagating seedlings. There was (and is) in this country an alworthless variety of the most known as the Chinese sand pear. It is very hardy and a most prolific bearer, but its fruit is the poorest excuse for a pear that could be imagined. Peter Kieffer, living in the neighborhood of Philadelphia, had one of the trees on his place. From this, for his own amusement, he raised numerous seedlings. Finally one of the seedlings showed a considerable variation from the general appearance of the sands, and Mr. Kieffer gave it special attention. When it fruited Mr. Kieffer found himself in possession of the now celebrated Kieffer pear. We now copy from Professor Mechan.

Mr. Kieffer grafted and sold a few here and there for \$5 each; but though he dis-tributed among his few horticultural friends annually fruit that would make the friends annually fruit that would make the most cold-souled epicure leap with joy, no effort was made by any one to place it properly on the market. At length the great centennial exposition came. Mr. Kieffer had some on exhibition; these excelled in size, beauty, flavor—everything, indeed, for which any pear could possibly be externed.

be esteemed.

The writer, who was secretary to the jury, can truly say that he remembers eating no pear like them. They had a medal and a strong report in their favor, and Mr. William Parry, a well known introducer of new faults made an arrangement with Mr. William Parry, a well known introducer of new fruits, made an arrangement with Mr. Kieffer for grafts. In this way the variety got regularly into commerce. It may be said that gardening is no longer an art here, as it was in Mr. Kieffer's day. A fruit has to be "hardy," and "first-class," just as nature gives it to you. You plant the property in a very great extent it must for as nature gives it to you. You plant the tree, but to a very great extent it must forever after be able to take care of itself. Philadelphia is being fast covered with buildings over its vast area of 130 square miles. The original Kieffer pear tree is still standing in Mr. Kieffer's grounds, but it will probably not be many years before the march of improvement will bid it begone. But the Kieffer pear will not go with that original tree—the world has it to stay as its own, and it will stay through all time to come.

growth to local conditions. Mr. Kieffer was one of the commonest and humblest of men. He planted seeds of the old sand pear "merely to be doing," as we say, without any expectations of such results as followed. But for this mere accident, as it were, his name would never have been neighbors, but now it is a household word out the length and breadth of the land, and thousands upon thousands have blessed by his little and aimless ex-

The well-known LeConte pear is another chance seedling of the old Chinese sand pear, though its exact origin cannot be so correctly arrived at as can that of the Kieffer.

Many have represented that these two celebrated pears are crosses on some popular variety, as the Bartlett, for instance, but this is not at all probable, as the sand pear does not flower exactly with any of the regular named varieties. It is more reasonable to regard the new pears as simply the result of an effort of nature to adapt her growths to local conditions.

Mr. W. S. Burke of Albuquerque, N. M., writing to the Massachusetts Ploughman. says the time was, and within the recollec tion of most of us, when "Uncle Sam was rich enough to give us all a farm"-not a poor, starvling apology for a farm, but a farm of 160 acres of as good land as ever laid out of doors-land which only needed to be planted to yield good crops; but as the years rolled by Uncle Sam's farms were appropriated by his relatives, until the time has now come when the man who desires to get a farm on easy terms must go out into those vast regions in which the soil is as good as a soil could possibly be, and where the sun shines almost perpetually through the growing season, but where the rainfall through that growing season is scarcely up to every requirement for such agricultural results as under other circumstances the soil would be capable of giving. But even here nature has provided for him in various ways to enable him to give those lands an artificial water supply and thus carry them, in point of profitable productiveness, entirely beyond the capabilities of those lands

celebrated in song, as mentioned above. portance of this section of our common country, continues Mr. Burke, which can be made to yield enormously under irrigation, but which, without water applied by artificial means, must necessarily remain uncertain for the agriculturist, we shall begin to speak of it as it is, and to shape our arrangements for getting out all there is in it. This cannot do otherwise than inaugurate a period of prosperity the like of which has not yet been seen on the American continent.

To this the editor of the Ploughman adds that there are some writers for the agricultural journals of the day, and even some editors of agricultural journals, who take a decidedly narrow view of the question of irrigation.

"Agriculture," they say, "is depressed. the value of farming land is low, and it is not improving in value; the condition of the average farmer does not compare favorably with that of the average laborer of equal ability in other trades and vocations, and what is the reason? Because we have too much cheap and productive land at the West and Southwest with which we must compete, and a better development of those regions would serve to make matters worse and still further depress the market for agricultural products and lands." This, in the opinion of the Ploughman, is an ex-

ceedingly narrow view of a great question. No one doubts or disputes the fact that the valuable arable land of our domain is be irrigated easily has been taken up and improved. There remains a vast area at the Southwest not yet improved by irrigation that ought to be improved at as early a day as possible. The area needs the improvement to better sustain its present population and to fill it up with a heavier population, and the whole country needs what it would be able to produce under a well-arranged artificial water supply. The nation needs more room. Either one of these things must shortly come to pass-we must make room for the thousands of immigrants constantly flocking to our shores from Europe by improving these lands, or we must check the immigration, or we must suffer a reduction in the rates of wages and productiveness of labor. Then why not irrigate every foot of land that can be irrigated, and be made more productive thereby? A heavy population without a correspondingly heavy production will bring us to witness a depression and suffering among the laboring class which at present we fortunately know little about.

TRRIGATION IN NEW ENGLAND. The editor of the Massachusetts Plough man says a Mr. A. P. Topley of that section of country has been irrigating his market garden, and particularly his early cabbages, and finds it to pay handsomely. The water employed is pumped up (don't say what from) by steam power. The writer adds that "there can be no question of the fact that there are many garden crops and fruits that will pay for irrigation, in seasons when we have not rain enough; and the fact that we had enough rain last year and the year before, through most of the growing season, should not make us blind to the fact that in most seasons we have periods of drouth in which irrigation would be very profitable. The experience of gardeners who have tried watering crops in dry seasons, proves beyond a doubt that the profit made by watering them will sometimes pay for the whole outlay for watering machinery in a single

The article goes on to show that irrigation is rapidly on the gain in the New England states, and that it is paying big returns in every case where correctly applied. The conditions up there are not overly favorable as a rule, for the streams run in narrow and deep valleys, and hence cultivatable lands. But Yankee ingenuity is at work, and already considerable tracts of land are being irrigated by "drove wells." The wells run at a depth ranging from fifty to 300 feet, and supply a stre of five or ten, often twenty, gallons per minute continuously from a two-inch pipe. The cost of driving such a well will vary with circumstances from \$50 to \$500, and the cost of pumping apparatus will vary from \$300 to \$1000 or more, according to the amount of work to be done, and the other circumstances of the case. And even this character of irrigation is believed to pay at the same time it we

at least 100 per cent profit on the investent necessary to secure it.

We are at a loss to know how the people of Texas, who say that irrigation is not at all necessary, will take this most reliable statement, in face of the fact that the annual rainfall in most parts of our state is far below that of New England. Along the Fort Worth-Waco artesian area there are millions of gallons of water running to waste daily from artesian wells, but nobody appears to thing of making any use of it for watering crops. Up in New England, however, they are driving down their gas pipes, and pumping up water by steam power, and becoming perfectly jubilant over the results. But never mind, boys-you'll find a use for this wasting of water before many years have rolled around. This is a new country, you know, and as a rule people come to a new country to merely live, rather than with a view to getting rich. If they have any dreams of sudden riches those dreams point to some kind of land speculation. The great day of such speculations is getting along well toward the afternoon, and "to-morrow morning" a new programme will be on the black-board, showing how the people may become rich off Texas resources rather than off speculation in Texas real estate. There will be nothing to risk in the work of that to-morrow. Success, under correct management, will be a thing as sure as the rising of the sun.

OUR CORRESPONDENTS.

This department is devoted to answering such questions as may be asked by our subscribers, which may be of general information. Inquiries of personal character that require answer by mail should always have stamp inclosed. Please give full name and postoffice address in addition to any such signature as "Subscriber," or "A. G. D." not for publication, if against the will of the writer, but to admit of direct communication should such a thing be deemed necessary. Address as directed at head of this page.

What do you think of the western belt of Texas for stock-raising and general farm-ing, beginning, say, at San Angelo and ranging northward? Is the country too dry for good success in the lines named? Much cheap land might still be had over there, but of course one don't want land upon which nothing could be raised.

Temple, Tex.

W. A. CLARK.

Northward from San Angelo, Tom Green county, would carry us over the very best portion of the Panhandle, and hence what is supposed to be the finest stock-raising country in the world. It is, furthermore, a fine wheat and other small grain country, but for general farming, for crops to run the season through, the rainfall is understood to be a little too light for best results Irrigation is now claiming much attention in the Panhandle, and once the thing gets fairly on foot, those regions of Northwestern Texas will have it all their own way. Irrigation will make them the finest fruit and general farming regions on the face of the globe. We could not think for a moment that a man was risking anything in buying the still comparatively cheap lands of Northwestern Texas.

THE RUSSIAN MULBERRY.

Please inform me through The GAZETTE as to the value of the Russian mulberry as a hedge plant for fencing purposes. "G." We don't think much of the Russian mul-

berry, so called, as a hedge plant. In our

opinion, after giving it a somewhat careful study, a cottonwood hedge would beat it by a large per cent, and we have no idea that you are hankering after a cottonwood hedge. If you should want our opinion of the Russian mulberry, further, it is at your command. If you are a party interested in the sale of the Russian mulberry our opinion could be of no advantage to you. The Russian mulberry is something new, and therefore something to speculate upon. arsenic, not a mother's son of them would already occupied. In California, Washinghave anything to do with it. After treatton and Oregon most of the land which can recollect when the "Multicaulis," still here to a limited extent, was that same kind of thing. It was to feed up the silkworms to such a degree of fatness that everybody would be forced into arraying himself in the finest silks and satins, on account of their being cheaper than common cotton goods. Well, you old folks know how it turned out, and it is just about the same way with the now boosted Russian mulberry. A great deal is said, and sometimes prettily said, about "the last man" on this old earth of ours. Nothing has ever been said about "the last tree." Of course if there is to come a last man there must also come a last tree. Now, if we were the last man, and the Russian mulberry was the last tree, we'd plant and propagate the Russian mulberry, but we would be fearfully sorry that the Multicaulis, or the cottonwood, or some other more worthless tree, hadn't outlived it. No doubt there are a few good and honest

men endeavoring to sell the Russian mulberry on its supposed merits, but at the same time there are hosts of sharpers trying to put it off as an imposition upon the people. Within the past five years we have had very large numbers of letters from "disinterested" writers whom nobody knew, setting forth all the rare virtues of the Russian mulberry. We could easily see "the cat in the meal tub," and so those letters went the way of all the earth, leaving us as their last readers. On two occasions a moneyed price was offered us to boom the Russian mulberry in our own name, but just then blackberries were coming in, and it would soon be roastingear time, so we were able to see our way through for a little season, as related to "table comforts," and on that account. presumably, the Russian mulberry didn't get boomed through the paper with which we are connected.

Now don't understand from this that we are attempting to represent the Russian mulberry as a humbur. We don't look upon it as anything of that sort. In our judgment it is everything it would appear to be to any sensible man, who would take the pains to study it a little. But the Russian mulberry is not attempting to sell itself to a credulous people, and hence when we say the Russian mulberry, as such, is no humbug, we want it distinctly understood that we are confining our remarks to the Russian mulberry, itself, and not to any one who might be concerned in

The Russian mulberry might make some thing of a hedge-the people who have it for sale say it is sublime as a hedge plant. If, however, you must have a hedge, and can't get bois d'arc, or hackberry, or willow, or cottonwood to make it out of, we'd suggest still another hedge plant before ad-vising you to settle down on Russian mulberry. Make your hedge of poke stalks. We cannot assert that the poke hedge would be any better as a turner of stock than would the Bussian mulberry hodge, though it would probable be equally as good, while at the same time it would present a decided it would

advantage in its capabilities of supplying one with his spring greens. Did you never eat bacon and poke greens? They are not to be succeed at, especially in a section of country where the commonest kind of turnip greens are selling at 10 cents a quart, dropped loosely into the measure. You'd get no spring greens out of your Russian nulberry hedge, neither would you get any more of a fence than you would get out of your poke greens patch. Then why not stick to the greens?

ABOUT BARREL GARDENING.

ABOUT BARREL GARDENING.

I have just been told by a gentleman who professes to know all about such things, that cucumbers, muskmelons and various other crops may be raised in flour barrels with the greatest of success, and kept growing throughout the season. The barrel is simply filled with good garden soil, and the seeds planted in the soil. The great gain is found in watering the plants. There is no waste of water, as in other forms of irrigation. You simply pour the water into the barrel, and the plants get all of it. What do you think of the system? V. V. V. do you think of the system? Fort Worth, Tex.

This barrel-gardening nonsense is not new by any means-it is simply an old thing rejuvenated. We say rejuvenated on account of the fact that we have seen a good deal about it in the papers of late. It was in its greatest glory about 1875. A gentleman of Bay St. Louis, Miss., who wrote under the nom de plume of "Nota Bene." started it in the following two paragraphs, which quite generally went the rounds of the press:

"We use old flour barrels in various ways. I fill up a barrel with good rich earth, and a top dressing of manure, and plant it with cucumber seed. The vine grows luxuriantly, is trailed on a fence or harbor and will bear till frost, yielding several brailess. eral hundred cucumbers.
Our housekeeper makes a very tidy
dressing table or washstand out of an empty

flour barrel, dressing it up in dimity or mus-lin, and bordering with fringe or ribbon. We make a comfortable cushion chair by sawing the barrel in the middle, leaving

three of the staves to support the back. Then fill up with clean straw, cotton or wool; cover the whole with calico, and you have a chair quite as pleasant as one made of rosewood or mahogany. For our own part, we never took much

stock in that barrel business. People wrote to us for information concerning it and we replied to them through the paper with which we were then connected that theory was one thing and practice another. We went on to state that the agriculturalist has hosts of theories to deal with. They are a kind of poetry for him, and if he has a taste for poetry he may enjoy them firstrate, provided he don't undertake to put too many of them to practice. There is danger in that. A few attempts at application may spoil the entire mess, by giving one chronic distaste for mere theory, consequently wiping out forever, in his case, a rather important source of enjoyment. So our advice to you shall ever stand as follows: When some theoretic agriculturist tells you a beautiful story about, say, what a nice piece of furniture you might make of an old flour barrel, or what vonders you might perform in the garden with the said barrel, or what a marvel of beauty you might bring to light by suspending a peach seed above a tumbler of water, or what a gorgeous window decoration you might cause to spring from a sweet potato in a bottle, try to believe every word of it. and to enjoy in your imagination the delightful things you might make, but don't undertake to make them. They are pleasant to think about, and in all such cases it is "best to let well enough alone." So say

we still. Nota Bene's paragraphs, as already quoted, were first published in the then ex sting "Home Journal" of New Orleans. No doubt the gentleman who told you about the great advantages of flour barrel gardening had obtained his cue directly from the publication mentioned above, for about all the papers of the country copied it.

A year or so after the publication had been made a gentleman called at our office in Mobile and informed us that he was down from the North in search of some suitable point at which to start a market garden. He was a market gardener by profession, he said, and had many new systems of culture by which he was able to astonish the world especially was he able to work the most extraordinary wonders in the production of the cucumber. He could realize a handsome little fortune off an acre of land to cucumbers in a single season! But he didn't want to make it all himself; he wanted to share his extraordinary profits with some good fellow as a partner. We hadn't much faith in cucumbers as a wholesome diet, therefore our conscience wouldn't allow us to enter into an arrangement with the gentleman, and he left us to battle on through the hard times alone; not, however, until we had given it as our opinion that the village of Citronelle, some thirty miles above Mobile, on the Mobile and Ohio railroad would be a good point for a really progress ive market garden.

Our champion cucumber raiser went to Citronelle, and there found a partner with tin enough to run the business, and without any conscientious scruples bearing on gorging the general public with cucumbers. It was to be a great cucumber success, and so the whole thing, aside from furnishing money, was to be left to the gentleman from the North with the great cucumber secret. So that gentleman took scrip in his purse and proceeded to collect all the old flour barrels in all the country round about. We think, as well as we can remember that he got about ten acres of flour barrels which he filled with good rich earth, according to directions by Nota Bene, for it was evident from the start that Nota Bene had been at the entire bottom of that broad transaction. The barrels were then planted with cucumber seeds and ten acres of arbors were put up for the cucumber vines to run upon and make up their enormous fruitage.

Well, from some cause or other it must not have been a good season for cucumbers. It may be that the moon never got right for those vines to run, and so one fine morning, to quiet the rising mistrust of the gentleman who had furnished the 'dough," the champion cucumberist concluded he had better run for them, which he did-to where the woodbine twineth And the gentleman who had furnished the dough" took what little he had left after selling his place and paying off the mortgage, and invested it in a small fishing ck, with a view, as many supposed, to turning pirate. The smack went to never returned, hence we are left in doubt as to what grew out of that cucumber en terprise. Some of those great uprisings and outbreaks on the Southern hemisphere may have sprung from it—who knows! When a man has waxed into bitterness over inking his all on a cucumber experiment there is no cafe rule for settling how

Nota Bene's article giving rise to flour barrel gardening, we have gone a little be vond what our correspondent was requir ing of us. The printers have already "stuck it into type," and that's what they live by. The type must stand, and to afford a good reason for its standing we must tell another, but true story, entirely out of the line of barrel gardening.

The reader has already taken in how Nota Bene's housekeepers made nice things for the house out of old flour barrels. Our folks had been reading that pleasant story, and so one evening when we took the minister home with us for tea. we, on entering the parlor, were much astonished by the appearance of something we had never seen there before. It was a flour barrel chair that our folks had made after Nota Bene's directions. At sight of it we felt a hot flush run up our spine, for it did not exactly fill our idea of the ornamental: and there was no improvement in the state of our feelings when pretty soon we saw the preacher rest his gaze upon the singular pièce of furniture with an unmistable expression of displeasure.

From that moment on the minister seemed ill at ease, and finally, after glaneing out of the window, he said to us in a half whisper, and with an inclination of the head in the direction of the barrel chair: "Brother Stelle, I see some ludies coming, and it has just occurred to me that you might feel embarrassed when you noticed that your servant had left a chair in the parlor which evidently belongs to the sick

Good reader, that chair went out, and these eyes of ours never beheld it after-

POPULAR SCIENCE.

AN INSECT THAT ACTUALLY BORES METALS.

Removing Tannin From Tea-Important Experiments With Steel Wire-A New Flying Machine.

Much interest is being roused in Germany over the discovery of an insect that actually bores through metal pipes. For considerable length of time very mysterious leaks have been found in lead pipes and in a few copper pipes. The openings looked like holes through which a nail had been driven. At last, according to Gesundheit's ingenieuter, the author of the trouble has been found. An insect of the wasp character was found boring the hole. The hole on the exterior of the pips was of a rounded form. about one-quarter of an inch long by one-eighth inch wide, and the penetration was through the entire thickness of the metal. Though of rare occurrence, well authenticated instances of similar injuries by insects are on record.

The ordinary Chinese tea is always rich in tannin. Mr. H. Grimshaw says this tannin is readily absorbed by suitable animal substances, such as horn shavings, dried albumen, add clippings, and the like. It is preferable to hide the material to the tea in the dry condition before the infusion is made. But it may also be added to the infusion, or the infusion may be passed or filtered through a layer of the substance The quantity of animal substance to b added to the tannin-containing material must be determined by the amount of tannin contained in it. In the case of tea the proportion may vary from one to two parts of animal substance to ten parts of tea. This discovery is looked upon as of imports ance, owing to the fact that tannin in renders the tea unwholesome for some persons.

In the current number of the Philose cal Journal Mr. F. J. Smith gives an ac count of some new mothods of investigating the points of recalescence in steel and iron. The object of the experiments was to discover the time connection which exists between the change of form and the change of temperature. Several methods of experimentation were tried, and the following was the one flually adopted: The upper end of the steel wire to be tested was fixed vertically; the lower end was attached to a long light lever of aluminum, so arranged that a small change of length of the wire caused a large movement of the end of the lever, which traced a line on the smoked surface of paper rotating on an ordinary physiological chronograph cylinder. A platinum-platino-rhodium thermo-couple, twisted around the wire where it was heated, was in circuit with a Deprez-D'Arsonval galvanometer. By means of this combination the temperatures at which the changes of length of the wire took place were read. The movements of the beam of light reflected from the galvanometer were recorded on a moving photographic film. The outcome of the experiments was that the changes of form of the metal under examination took place at the times of change of temperature, so that a curve so traced on the smoked paper can be used as an in

dex of the changes of form and the changes

might be accompanied by some sounds at the critical points, the following apparatus was constructed: A mica disk was fitted into a circular recess turned out of a piece of wood. The steel wire under examina tion was attached at one end to the center of the disk, at the other to a vertical post, The front of the recess into which the mica disk was fitted was furnished with two sounding tubes. On heating the wire a certain temperature was reached at which a sharp crackling sound was heard. As the temperature was increased this ceased; then, on removing the flame, at the same temperature at which the first sound was heard, a second similar sound occurred. This took place at the point of recalescence As the wire cooled this ceased, and then. when a temperature of 490 degrees C. was reached, a very sharp sound was emitted. This third sound appears to take place at the second critical point observed by M. Osborn. The wire used in these experiments was steel pianoforte wire, annealed and straightened. The last experiment was also arranged so that the steel wire when heated should be in a strong magnetic feld. Repeated trials showed that the sounds produced were in no way altered by the fact of the wire being in the magnetic field. A new flying machine is now before the

die, secording to the Scientific Ameri-

rimental device consists of a thin sheet

an. It is the invention of Mr. H. Maxim,

and works on the principle of a kite. The

or kite four feet wide and thirteen feet long, which is propelled by a screw capable A Man of Nerve.

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